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10/674,220	09/29/2003	Jessy Rouyer	139165USNP	2505

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ALCATEL USA
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3400 W. PLANO PARKWAY, MS LEGL2
PLANO, TX 75075

EXAMINER	
CHRISS, ANDREW W	

ART UNIT	PAPER NUMBER
2609	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/674,220	Applicant(s) ROUYER ET AL.	
	Examiner Andrew Chriss	Art Unit 2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/29/2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/29/2003*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. **Claim 2** objected to because of the following informalities: Claim is written in independent form but should be dependent on Claim 1, and will be assumed as such for purposes of examination. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1 and 8-11** rejected under 35 U.S.C. 103(a) as being unpatentable over Ambe (United States Patent 7,061,876) in view of Doverspike et al (United States Patent 6,970,417), hereinafter Doverspike.

Regarding Claim 1, Ambe teaches a bridged network system, as shown in Figure 1A. The bridged network comprises a plurality of nodes (switches B1-B5), wherein each node is coupled to communicate with at least one other node in the plurality of nodes, and wherein the plurality of nodes comprise a bridge network between external nodes (terminals A11 through A53) located externally from the plurality of nodes. Further, each node is operable to receive a frame (packet) as shown in Figure 11, wherein the packet comprises a route indicator field (MAC address list), as shown in Figure 9B. Further, Ambe teaches that responsive to a packet being received prior to a time of failure between two of the plurality of nodes, the node transmits the packet along a first route in the system, as shown in step S14 in Figure 11. Examiner asserts that a packet being received prior to a time of failure is equivalent to the normal operating conditions of a network. However, Ambe does not teach transmitting the packet along a second route in the system after a time of failure. In the same field of endeavor, Doverspike teaches a method responsive to a failure in a first path, rerouting traffic to a second communication path that had been identified prior to said failure (column 15, lines 18-27). Further, Doverspike discloses that the new communication path is node and span disjoint from the original data path (column 7, lines 52-54). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the path restoration taught in Doverspike with Ambe in order to only have error detection circuitry at edge nodes in the network and free resources within the network.

Regarding Claim 8, Ambe further teaches identifying a transmit port in the node that corresponds to a receipt port in the node, as shown in Figure 7. Further, Ambe teaches transmitting a frame (packet) via the ports (column 4, lines 41-45). However, Ambe does not teach transmitting the packet along a second route. In the same field of endeavor, Doverspike

teaches transmitting a packet along a second route (column 15, lines 18-27). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the path restoration taught in Doverspike with Ambe in order to only have error detection circuitry at edge nodes in the network and free resources within the network.

Regarding Claim 9, Ambe further teaches an optimum spanning tree selection table, which does not contain a destination address (Figure 7). The optimum spanning tree is determined based on a hop count or by a path cost (column 2, lines 43-45). Therefore, the transmitting step is not responsive to a destination address in the packet.

Regarding Claim 10, Ambe teaches multiple nodes being operable to receive and transmit packets along any one of multiple routes, based on information contained in a spanning tree, until the packet reaches terminal A11 via switch B1, which serves as an egress node in the bridged network.

Regarding Claim 11, Ambe further teaches identifying a transmit port in the node that corresponds to a receipt port in the node, as shown in Figure 7. Further, Ambe teaches transmitting a frame (packet) via the ports (column 4, lines 41-45). However, Ambe does not teach transmitting the packet along a second route. In the same field of endeavor, Doverspike teaches transmitting a packet along a second route (column 15, lines 18-27). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the path restoration taught in Doverspike with Ambe in order to only have error detection circuitry at edge nodes in the network and free resources within the network.

5. **Claims 2-5 and 7** rejected under 35 U.S.C. 103(a) as being unpatentable over Ambe in view of Doverspike, as applied to claim 1 above, and further in view of Perlman et al (United States Patent 5,796,740), hereinafter Perlman.

Regarding Claim 2, Ambe and Doverspike teach all of the limitations of Claim 1, as discussed above. However, the references do not teach determining a third route in the system after the time of failure, receiving a second packet after the first packet, transmitting the second packet along the third route. In the same field of endeavor, Perlman teaches determining a third link and receiving a subsequent (second) packet. Further, Perlman teaches forwarding said subsequent packet along a third route (column 18, lines 61-62). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the packet forwarding taught in Perlman with Ambe, as modified above, in order to reduce the time required to forward data packets.

Regarding Claim 3, Ambe-Doverspike-Perlman teach all of the limitations of Claim 2, as described above. However, Ambe and Doverspike do not teach changing the state of the route indicator field to cause transmission to the third route after receiving the second packet and prior to transmitting the second packet. In the same field of endeavor, Perlman teaches writing a data link address of a receiving end station into a data link destination address field of a first packet and forwarding said first packet onto said third link (column 18, lines 61-62). Further Perlman teaches writing a data link address into data link destination address field of subsequent packets (which would include a second packet) transmitted to said receiving end station. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the packet

forwarding taught in Perlman with Ambe, as modified above, in order to reduce the time required to forward data packets.

Regarding Claim 4, Ambe-Doverspike-Perlman teach all of the limitations of Claim 3, as described above. Further, Ambe teaches the terminal A31 transmits an ARP response frame whose destination MAC address for terminal A11, which is external to the plurality of nodes. (Column 6, lines 21-27). The switch B3, in order to transmit the frame, consults an expanded learning table (Figure 6), which identifies a transmit port in the node that corresponds to a destination address (MAC address) in the packet. After consulting the expanded learning tree, the switch transmits the ARP response frame along a first route, using a default spanning tree, via a transmit port (column 6, lines 53-56).

Regarding Claim 5, Ambe-Doverspike-Perlman teach all of the limitations of Claim 4, as described above. Further, Ambe teaches identifying a transmit port in the node that corresponds to a destination address in the packet, as discussed with regards to Claim 4 above. However, Ambe does not teach transmitting the packet via the transmit port to the third route. In the same field of endeavor, Perlman teaches forwarding a packet along a third route, as discussed with regards to Claim 2 above. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the packet forwarding taught in Perlman with Ambe, as modified above, in order to reduce the time required to forward data packets.

Regarding Claim 7, Ambe further teaches setting the route indicator field and transmitting it along the first route. However, the references do not teach performing these operations after receiving a second packet. In the same field of endeavor, Perlman teaches receiving a second packet, as discussed with regards to Claim 2 above. It would have been

obvious to one of ordinary skill in the art at the time of the invention to combine the packet forwarding taught in Perlman with Ambe, as modified above, in order to reduce the time required to forward data packets.

6. **Claim 6** rejected under 35 U.S.C. 103(a) as being unpatentable over Ambe in view of Doverspike and Perlman as applied to claim 2 above, and further in view of Petersen et al (United States Patent 6,154,448), hereinafter Petersen. Ambe-Doverspike-Perlman teach all of the limitations of Claim 2, as described above. However, the references do not teach a node, adjacent to a failure in the first route, receiving the second packet. In the same field of endeavor, Petersen teaches a method for detecting a failure in a telecommunications network, wherein a second packet is received by a node adjacent to a failed link (column 11, lines 22-38). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the next hop loopback technique taught in Petersen with Ambe, as modified above, in order to implement the path restoration technique on an "as needed" basis rather than a periodic basis, thus conserving network resources.

7. **Claim 12-14, 16, and 17** rejected under 35 U.S.C. 103(a) as being unpatentable over Ambe in view of Doverspike, as applied to Claims 1 above, and further in view of Navar et al (United States Patent 6,915,445), hereinafter Navar. Ambe and Doverspike teach all of the limitations of Claim 1, as described above. Further, Ambe teaches a first node (B3) in the plurality of nodes that receives a packet from a first external node (A31), thus comprising an ingress node. Ambe also teaches a second node (B1) in the plurality of nodes that is coupled to communicate the packet to a second external node (A11), thus comprising an egress node.

However, the references do not teach, responsive to a node in the plurality of nodes receiving a packet as an ingress node, inserting an address of the ingress node and the egress node into the packet. In the same field of endeavor, Navar teaches a label switched router (LSR) 105 which acts as an ingress to a network. The LSR then switches the existing labels on the packets with new values representing ingress and egress addresses (column 6, lines 39-45). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Navar with Ambe, as modified above, in order to provide distributed processing, thus ensuring the routing will still be able to occur in spite of component failures.

Regarding Claim 13, Ambe further teaches transmitting the packet along either the first route or the second route by identifying a transmit port in the node (Figure 6) and transmitting the packet via the transmit port to either the first or second route (Figure 8), as described with regards to Claim 5 above.

Regarding Claim 14, Ambe further teaches transmitting the packet along either the first or second route responsive to a value of an optimum spanning tree, equivalent to Applicant's route indicator field (Figure 8).

Regarding Claim 16, Ambe further teaches a first route and a second route comprising routes in a plurality of different routes, wherein each route is identified prior to a time of failure using an optimum spanning tree (Figure 7), equivalent to Applicant's route indicator field.

Regarding Claim 17, Ambe further teaches each route in the plurality of different routes being identified by a corresponding and different value in the optimum spanning tree (Figure 7), equivalent to Applicant's route indicator field.

8. **Claim 15** rejected under 35 U.S.C. 103(a) as being unpatentable over Ambe in view of Doverspike and Navar, as applied to claim 14 above, and further in view of Habetha (United States Patent United States Patent 7,031,321). Ambe-Doverspike-Navar teach all of the limitations of Claim 14, as described above. However, the references do not teach the packet comprising a field indicating the allowability of an ingress node or a node adjacent a failure to change a state in the route indicator field. In the same field of endeavor, Habetha teaches an UPDATE TRIGGER message, which contains information on changes in the network topology (column 7, lines 41-51). This message would cause a node that receives it (e.g., an ingress node to a network, a node adjacent to a failure) to change its routing tables, and packets that come through. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the dynamic routing method taught in Habetha with Ambe, as modified above, in order to reduce the quantity of data to be transmitted when updating local routing tables.

9. **Claims 18 and 19** rejected under 35 U.S.C. 103(a) as being unpatentable over Ambe in view of Doverspike and Navar as applied to claim 16 above, and further in view of Nozaki et al (United States Patent 6,950,431), hereinafter Nozaki.

Regarding Claim 18, Ambe-Doverspike-Navar teach all of the limitations of Claim 16, as described above. However, the references do not teach the packet comprising a VLAN identifier field. In the same field of endeavor, Nozaki discloses a packet structure containing a VLAN-ID, as shown in Figure 3. It would have been obvious to one of ordinary skill in the art at the time of the invention the teachings of Nozaki with Ambe, as modified above, in order to

provide an information relay technique capable of providing a multicast service without increasing the amount of control traffic in the network.

Regarding Claim 19, Ambe-Doverspike-Navar teach all of the limitations of Claim 18, as described above. However, the references do not teach the VLAN identifier field facilitating registration of selected different routes in the plurality of routes. In the same field of endeavor, Nozaki teaches a VLAN table in Figure 2 which uses the VLAN-ID to register multiple routes. It would have been obvious to one of ordinary skill in the art at the time of the invention the teachings of Nozaki with Ambe, as modified above, in order to provide an information relay technique capable of providing a multicast service without increasing the amount of control traffic in the network.

10. **Claim 20** rejected under 35 U.S.C. 103(a) as being unpatentable over Ambe in view of Doverspike and Navar as applied to claim 16 above, and further in view of Perlman. Ambe-Doverspike-Navar teach all of the limitations of Claim 16, as discussed above. However, the references do not teach determining a third route in the system after the time of failure, receiving a second packet after the first packet, or transmitting the second packet along the third route. Perlman teaches determining a third route in the system, receiving a second packet, and transmitting the second packet along the third route, as discussed with regards to Claim 2 above. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the packet forwarding taught in Perlman with Ambe, as modified above, in order to reduce the time required to forward data packets. in order to reduce the time required to forward data packets.

11. **Claim 21** rejected under 35 U.S.C. 103(a) as being unpatentable over Ambe in view of Bentall et al (United States Patent 6,163,525), hereinafter Bentall. Ambe teaches a bridged network system, as shown in Figure 1A. The bridged network comprises a plurality of nodes (switches B1-B5), wherein each node is coupled to communicate with at least one other node in the plurality of nodes, and wherein the plurality of nodes comprise a bridge network between external nodes (terminals A11 through A53) located externally from the plurality of nodes. Further, each node is operable to receive a frame (packet) as shown in Figure 11, wherein the packet comprises a route indicator field (MAC address list), as shown in Figure 9B. Further, Ambe teaches that responsive to a packet being received prior to a time of failure between two of the plurality of nodes, the node transmits the packet along a first route in the system, as shown in step S14 in Figure 11. However, Ambe does not teach transmitting the packet along a second route in the system in response to an indication in a broadcast message. In the same field of endeavor, Bentall teaches a node that receives a flood (broadcast) message from a sender indicating a failure (figure 9, column 9, lines 54-56). Further, Bentall teaches that the node continues communication (transmits a packet) using a selected alternative (second) route, shown in Figure 3. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the alternate path selection taught in Bentall with Ambe, as modified above, in order to reduce the number of search messages and response time.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Saleh (United States Patent 7,002,917) is directed to a method for path selection in a network.

b. Di Benedetto (United States Patent 6,898,189) is directed to a restartable spanning tree for high availability network systems.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Chriss whose telephone number is 571-272-1774. The examiner can normally be reached on Monday - Friday, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on 571-270-1202. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrew Chriss
Examiner
Art Unit 2609

AC

CHARLES D. GARBER
SUPERVISORY PATENT EXAMINER